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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,843

06/28/2006

Masamichi Ando

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3453

32172

7590

07/23/2008

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EXAMINER

HAM, SEUNGSOOK

ART UNIT

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2817

MAIL DATE

DELIVERY MODE

07/23/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/584,843	ANDO ET AL.	
	Examiner	Art Unit	
	Seungsook Ham	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 3-5,9 and 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-8,10-12 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/28/06, 3/19/08</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Species II in the reply filed on 6/2/08 is acknowledged.

Claims 3-5, 9, and 13-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species I, III and IV, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 6/2/08.

It should be noted that claims 6, 7, 10-12 and 19 are also generic claims, thus, these claims will be considered on this Office action.

Information Disclosure Statement

The information disclosure statement filed 6/28/06 (JP 2-168705, JP 11-145705, JP 5-129813) fails to comply with 37 CFR 1.98(a)(2), which requires **a legible copy of each cited foreign patent document**; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7, 11, 12 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka (US '929).

Tanaka (fig. 1) discloses a dielectric resonator comprising: a dielectric core 20 in a conductive cavity 2, the dielectric core including a through hole 22a; and at least one support bar 14 inserted into the through hole and secured to the cavity so that the dielectric core is supported in the cavity.

Regarding claim 7, Tanaka also shows the at least one support bar is formed of a dielectric material whose dielectric constant is lower than that of the dielectric core (col. 3, lines 27-31).

Regarding claims 11, 12 and 19, Tanaka also shows an external coupling 8 (fig. 1) coupled to the dielectric resonator and can be used in a microwave filter (e.g., a high frequency circuit, col. 1, lines 9-11).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 7, 8, 11, 12, and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Pance et al. (US Pat. App. Pub. '176).

Pance et al. (figs. 7-8, see WO 2004/102730 for better quality of drawings) discloses a dielectric resonator comprising: a dielectric core 702 in a conductive cavity 701, the dielectric core including a through hole 716; and at least one support bar 703 inserted into the through hole and secured to the cavity so that the dielectric core is supported in the cavity. Moreover, Pance et al. teaches that the at least support bar

703 is conductive and both ends of the bar are electrically connected to opposing inside walls so that a short circuit is produced between the opposing inside walls (see paragraph [0053]).

Regarding claims 7, 8, 17 and 18, Pance et al. also teaches that the at least one support bar can be a hollow and is formed of a dielectric material (i.e., Teflon) whose dielectric constant is lower than that of the dielectric core; a conductor (which can be a conductive film) is disposed in the hollow support bar (see paragraph [0057]).

Regarding claims 11, 12 and 19, Pance et al. also shows an external coupling 709, 711 coupled to the dielectric resonator and can be used in a microwave filter (e.g., a high frequency circuit, see paragraph [0002]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US '929) in view of Hattori et al. (US '087).

Tanaka does not show the dielectric core can be a rectangular parallelepiped form or excites three $TE_{01\delta}$ modes. However, Tanaka teaches that the dielectric resonator/core can have different TE modes (col. 4, lines 52-61) including a square pillar. Hattori et al. (fig. 28) discloses a well known triple $TE_{01\delta}$ modes having a rectangular dielectric core. It would have been obvious to one of ordinary skill in the art to provide a dielectric core having a rectangular shape or different $TE_{01\delta}$ modes as one desires since such dielectric core is well known in the art as shown by Hattori et al. and such modification requires only a routine skill in the art.

Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pance et al. (US Pat. App. Pub. '176) in view of Hattori et al. (US '087).

Pance et al. does not show the dielectric core can be a rectangular parallelepiped form or excites three $TE_{01\delta}$ modes. However, Pance et al. teaches that the dielectric resonator/core can have a plurality of TE modes (see paragraphs [0007]-[0009] and [0044]) and other types of dielectric resonators/cores can be used. Hattori et al. (fig. 28) discloses a well known triple $TE_{01\delta}$ modes having a rectangular dielectric core. It would have been obvious to one of ordinary skill in the art to provide a dielectric core having a rectangular shape or three $TE_{01\delta}$ modes as one desires since such

dielectric core is well known in the art as shown by Hattori et al. and such modification requires only a routine skill in the art.

Claims 1, 2, 6, 10-12 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hattori et al. (US '087) in view of JP 51-49940.

Hattori et al. (figs. 28-31) disclose a triple $TE_{01\delta}$ mode dielectric resonator having a dielectric core 1 disposed in a cavity 2 using a dielectric support 3.

Hattori et al. does not show a support bar inserted through the through hole of the dielectric core and secured to the cavity.

Pance et al. (figs. 7-8) discloses a dielectric resonator having a support bar inserted through the through hole of a dielectric core and both ends of the bar is short circuited to the inside walls (see paragraph [0053]) for minimize any reduction in quality factor Q (paragraph [0018] by improving heat dissipation ([paragraphs [0047]-[0048])).

Pance et al. also discloses the support bar can be hollow dielectric and a conductor or conductive film disposed inside of the hollow (paragraph [0057]). Moreover, Pance et al. teaches the conventional dielectric supports (such as the support shown in Hattori et al.) does not provide adequate heat dissipation (paragraph [0011]).

It would have been obvious to one of ordinary skill in the art to provide the support bar of Pance et al. and secured to the inside walls of the cavity instead of the dielectric support in the device of Hattori et al. to minimize any reduction in quality factor Q as taught by Pance et al.

Claims 1, 2, 6-8, 10-12 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hattori et al. (US '087) in view of Pance et al. (US Pat. App. Pub. '176).

Hattori et al. (figs. 28-31) disclose a triple $TE_{01\delta}$ mode dielectric resonator having a dielectric core 1 disposed in a cavity 2 using a dielectric support 3.

Hattori et al. does not show a support bar inserted through the through hole of the dielectric core and secured to the cavity.

JP 51-49940 (fig. 8) discloses a dielectric resonator having a conductive support bar 20 to increase shock resistance or to separate a higher-mode spurious frequency from a dominant-mode frequency (see page 2 of English translation of Japanese Office Action dated 2/4/08 submitted by the applicant on 3/19/08).

It would have been obvious to one of ordinary skill in the art to use the support bar of JP 51-49940 and secured to the inside walls of the cavity instead of the dielectric support in the device of Hattori et al. to increase shock resistance or to separate a higher-mode spurious frequency from a dominant-mode frequency as taught by JP 51-49940.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Pance et al. (WO 2004/102730) is an equivalent to US Patent Application Publication 2004/0257176;

Nishikawa et al. (US '652) discloses a dielectric resonator having a conductive wire to suppress unwanted mode; and

Andoh et al. (US Pat. App. Pub. '864) discloses a multi-mode dielectric resonator having a conductive wire to separate unwanted mode (see fig. 10).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (571) 272-2405. The examiner can normally be reached on Monday-Thursday, 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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